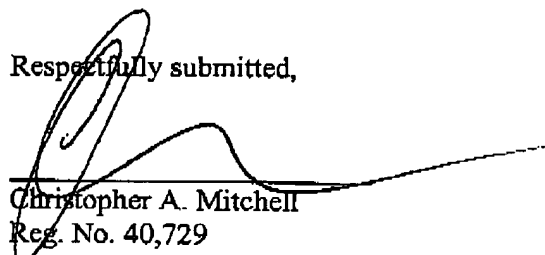


III. Conclusion

In view of the foregoing, Applicant submits that the claims are in condition for immediate allowance. Of course, the examiner is invited to contact Applicant's undersigned counsel at (734) 662-0270 if she should have any questions respecting this paper, or if a telephonic interview might otherwise expedite the prosecution of this case.

Respectfully submitted,



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Dated: 13 June 2003

Marked-Up Version of Proposed Specification Amendment

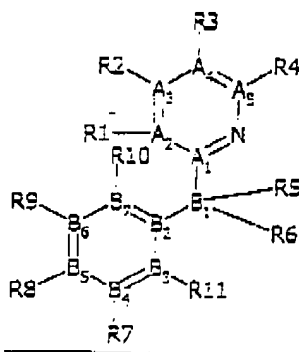
This object is achieved by a substrate [according to claim 1 and as regards process technology by claim 20.] for packaging of or for attachment to products which are sensitive to aging and temperature, having a time-temperature integrator arranged in the region of the substrate, wherein the time-temperature integrator contains a matrix and at least one reversible, crystalline indicator embedded therein, which has photochromic properties on the basis of transfer reactions in crystalline materials, and wherein further the reversible indicator is characterized by a successive discoloration following photo-induced coloration thereof, the successive discoloration proceeding as a function of both time and temperature. This object is further achieved by a process for determining the quality of products which are sensitive to aging and temperature and are provided with a substrate according the present invention, the process comprising the steps of effecting photo-induced coloration of the reversible indicator, and determining the degree of time-related or temperature-related discoloration and the quality of the product taking into account the degree of discoloration. The sub-claims relate to preferred embodiments and further developments of the invention.

Marked-Up Version of Claim 1 Showing Proposed Changes Thereto

1. (Twice Amended) Substrate for packaging of or for attachment to products which are sensitive to aging and temperature, having a time-temperature integrator arranged in the region of the substrate, wherein the time-temperature integrator contains a matrix and at least one reversible , crystalline indicator embedded therein, which has photochromic properties on the basis of transfer reactions in crystalline materials, and wherein further the reversible indicator is characterized by a successive discoloration following photo-induced coloration thereof, the successive discoloration of the reversible indicator proceeding as a function of both time and temperature [time and temperature dependent discoloration following photo induced coloration thereof] .

Marked-Up Version of Claim 4 Showing Proposed Changes Thereto

4. (Twice Amended) Substrate according to claim 1, wherein the reversible indicator has a skeletal structure according to the general formula I;



wherein A₁-A₅ = carbon atom and/or heteroatom

R₁-R₄ = hydrogen atom and/or isotope thereof, and/or Cl, F, Br, or a substituent selected from the group consisting of alkyl groups, methyl or aryl groups, and phenyl groups

R₅ = hydrogen atom or isotope thereof, or a substituent selected from the group consisting of Cl, F, Br, an alkyl group, a methyl group, an aryl group, phenyl group, and pyridine

R₆ = hydrogen atom or isotope thereof

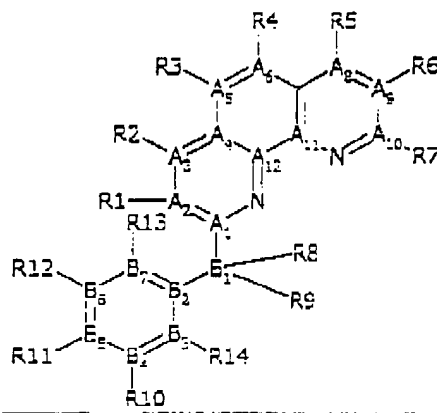
B₁-B₇ = carbon atom and/or heteroatom

R_1 - R_{10} = hydrogen atom and/or an isotope thereof, and/or one or more Cl, F, Br, amino groups, nitro groups, or one or more substituents selected from the group consisting of alkyl groups, methyl or aryl groups, and phenyl groups,

R_{11} = nitro group or a cyano group or a carboxylic acid group or a variant selected from the group consisting of an ester, amide, ketone or aldehyde group.

Marked-Up Version of Claim 5 Showing Proposed Changes Thereto

5. (Twice Amended) Substrate according to claim 1, wherein the reversible indicator has a skeletal structure according to the general formula II:



wherein A_1-A_{12} = carbon atom and/or a heteroatom

R_1-R_7 = hydrogen atom and/or isotope thereof, and/or Cl, F, B, or substituents selected from the group consisting of alkyl groups, methyl or aryl groups, and phenyl groups

R_8 = hydrogen atom or isotope thereof, or a substituent selected from the group consisting of Cl, F, Br, an alkyl group, phenyl group, and pyridine

R_9 = hydrogen atom or isotope thereof

B_1-B_7 = carbon atom and/or heteroatom

$R_{10}-R_{13}$ = hydrogen atom and/or isotope thereof, and/or one or more Cl, F, Br, amino groups, nitro groups, or one or more substituents selected from the group consisting of alkyl groups, methyl or aryl groups, and phenyl groups

R_{14} = a nitro group, a cyano group, a carboxylic acid group, an ester, an amide, a ketone, or an aldehyde group.

Marked-Up Version of Claim 19 Showing Proposed Changes Thereto

19. (Twice Amended) Process for determination of quality of products which are sensitive to aging and temperature comprising the steps of :

- a) providing a substrate for packaging of or for attachment to a product which is sensitive to aging and temperature, having a time-temperature integrator arranged in the region of the substrate, wherein the time-temperature integrator contains a matrix and at least one reversible, crystalline indicator embedded therein, which has photochromic properties on the basis of transfer reactions in crystalline materials, and wherein further the reversible indicator is characterized by a successive discoloration following photo-induced coloration thereof, the successive discoloration of the reversible indicator proceeding as a function of both time and temperature [time and temperature dependent discoloration following photo-induced coloration thereof];
- b) effecting photo-induced coloration of the reversible indicator; and
- c) determining the degree of time-related and temperature-related discoloration and the quality of the product taking into account the degree of discoloration.